



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCE**

In re Application of

Confirmation No.: 5049

Hyeon Jun KIM et al.

Group Art Unit: 2623

Serial No.: 09/785,443

Patent Office: Jingge WU

Filed: 2/20/2001

Customer No.: 34610

For: **CONTENT-BASED MULTIMEDIA RETRIEVAL SYSTEM AND METHOD
THEREOF**

REPLY BRIEF

U.S. Patent and Trademark Office
Customer Window, Mail Stop Appeal Brief-Patents
Randolph Building
401 Dulany Street
Alexandria, Virginia 223134

Sir:

In reply to the Patent Office's Answer dated August 29, 2005, Appellants provide the following comments:

Regarding section 3(A)1 at pp. 6-9 of the Patent Office's Answer:

The Patent Office argues that "the claimed language does not have the limitations as argued converting 'histograms based on color quantization methods.'" However, as correctly indicated by the Patent Office, referring, for example, to independent claim 1, the claim recites "a histogram converter which converts the color histogram of one of the extracted query multimedia data and the multimedia data to be retrieved into a histogram having a color space and color quantization method of the other of the extracted query multimedia data and the multimedia data to be retrieved." Thus, the color histogram of one of the extracted query

multimedia data and the multimedia data to be retrieved is converted into a histogram of the other of the extracted query multimedia data and the multimedia data to be retrieved based on both color space and color quantization method. The mis-understanding of the term “based on” clearly shows clear error by the Patent Office, and the Patent Office is substituting its own language rather than features recited in the claims.

The Patent Office further argues that “there is no support in the specification for the argument of converting histogram based on quantization.” It is clear from this comment that the Patent Office misunderstands the invention disclosed and claimed in the present application. The Patent Office is directed, for example, to p. 13, line 20 through p. 14, line 25 of the present application, in particular p. 14, lines 16-25.

The Patent Office then compares two histogram descriptions present in the Bergman disclosure: RGBhist: histogram (integer) [512] and HVShist: histogram (real) [166]. However, HVShist: histogram (real) [166] is merely an example of a standard description given at col. 13, line 6 of Bergman. On the other hand, RGBhist: histogram (integer) [512] is disclosed in col. 13, line 45 in a discussion starting at col. 13, line 39 (though col. 14, line 2) regarding using transform functions to define the relationship between one standard description type and another standard description type. There is no disclosure or suggestion in this section of Bergman of converting a color histogram based on color space and color quantization method. In fact, Bergman only states that “[i]n order for the search engine to query [] multiple archives given a single query color histogram ..., the search engine 1902 must transform that query histogram into the appropriate histogram *color spaces* of the particular archives 1903, 1904, 1905...” (emphasis added).

Additionally, the Patent Office argues that “the features upon which Appellant relies (i.e., the histogram conversion with a color space having color quantization (R: five levels, G: five levels, B: five levels) to another color space having color quantization (H: seven levels, S: seven levels, V: seven levels) are not recited in the rejected claim(s).” However, Appellants did not allege that such features were claimed features of the rejected claims. Appellants merely provided an example from the present application to assist the Patent Office in its understanding of the claimed invention.

Regarding section 3(A)2 at p. 9 of the Patent Office’s Answer:

Dependent claim 4 recites “a color space description means for describing color space constructing the color histogram” and “a quantization description means for describing color quantization method constructing the color histogram.” The examples referred to by the Patent Office are each a standard descriptor for a single histogram, and neither address color quantization method.

Regarding section 3(A)3 at pp. 9-10 of the Patent Office’s Answer:

Independent claim 6 recites “converting a color histogram of one of the inputted query multimedia data and multimedia data to be retrieved into a color histogram having a color space and color quantization method of the other of the inputted query multimedia data and the multimedia data to be retrieved so as to be the same each other.” Thus, the color histogram of one of the extracted query multimedia data and the multimedia data to be retrieved is converted into a histogram of the other of the extracted query multimedia data and the multimedia data to

be retrieved based on color space and color quantization method. Further, as previously stated, there is no disclosure or suggestion in the sections of Bergman referred to by the Patent Office of converting a color histogram based on color space and color quantization method.

Regarding section 3(A)4 at pp. 10-11 of the Patent Office's Answer:

The Patent Office argues that “what the Appellant argues [] is not the same as the claimed language of claims 9 and 10.” However, at pages 10-11 of the Appeal Brief, Appellants recite claims 9 and 10 verbatim. Appellants argue that such features are not disclosed or suggested by Bergman. Further, Appellants provide an example referring to the specification and drawings to assist the Patent Office in its understanding of the claimed invention and as is required under Patent Office rules, which require “[f]or each independent claim involved in the appeal and for each dependent claim argued separately...the acts described in the specification as corresponding to each claimed function must be set forth with reference to the specification by page and line number, and the drawing, if any, by reference characters.” The Patent Office should be quite familiar with these rules as he issued a Notification of Non-Compliant Appeal Brief based on this rule, to which Appellants responded.

Further, each of the arguments set forth by the Patent Office refer to color space but not color quantization method. As previously stated, there is no disclosure or suggestion in the sections of Bergman referred to by the Patent Office of converting a color histogram based on color space and color quantization method.

Additionally, the Patent Office argues that:

Bergman clearly addresses the problem the different color space and histogram between the query multimedia data and stored multimedia data (fig. 19, col. 13

line 57-col 14 line 2). In addition, Bergman teaches that “[i]n order for the search engine to query the multiple archives, given a single query color histogram Q (preferably generated by a user 1901), the search engine 1902 must transform that query histogram Q into the appropriate histogram color space of the particular archives 1903, 1904, 1905 (i.e., $F_1(Q)$, $F_2(Q)$, and $F_3(Q)$ respectively and those transformations are done by the transform functions F (col. 13, lines 39-55). Content-based searching across multiple archives requires transformation of the query histogram Q to be compatible with the specific content descriptions in each archives.” (fig. 19, col. 13 line 60-col. 14 line 2). Needless to say to start transformation, one need to know whether or not the archived multimedia data is compatible with the query multimedia data, thus, the comparison has to be inherent.

However, Bergman merely teaches using transform functions to define the relationship between one standard description type and another standard description type. There is no disclosure or suggestion in this section of Bergman of converting a color histogram based on color space and color quantization method. Appellants respectfully disagree with the Patent Office’s assertion that “the comparison has to be inherent,” in particular since Bergman does not address color quantization methods.

Referring to section 3(A)5 at pp. 11-12 of the Patent Office’s Answer:

The Patent Office again argues that:

Bergman clearly addresses the problem the different color space and histogram between the query multimedia data and stored multimedia data (fig. 19, col. 13 line 57-col 14 line 2). In addition, Bergman teaches that “[i]n order for the search engine to query the multiple archives, given a single query color histogram Q (preferably generated by a user 1901), the search engine 1902 must transform that query histogram Q into the appropriate histogram color space of the particular archives 1903, 1904, 1905 (i.e., $F_1(Q)$, $F_2(Q)$, and $F_3(Q)$ respectively and those transformations are done by the transform functions F (col. 13, lines 39-55). Content-based searching across multiple archives requires transformation of the query histogram Q to be compatible with the specific content descriptions in each archives.” (fig. 19, col. 13 line 60-col. 14 line 2). Needless to say to start transformation, one need to know whether or not the archived multimedia data is

compatible with the query multimedia data, thus, the comparison has to be inherent.

However, Bergman merely teaches using transform functions to define the relationship between one standard description type and another standard description type. There is no disclosure or suggestion in this section of Bergman of converting a color histogram based on color space and color quantization method. Thus, Appellants respectfully disagree with the Patent Office's assertion that "the comparison has to be inherent," in particular since Bergman does not address color quantization methods.

Regarding section 3(A)6 at p. 13 of the Patent Office's Answer:

See above comments with respect to sections 3(A)1-3(A)5.

Regarding section 3(A)7 at p. 14 of the Patent Office's Answer:

See above comments with respect to section 3(A)2.

Regarding section 3(A)8 at pp. 14-16 of the Patent Office's Answer:

Claim 29 recites that "the content based multimedia retrieval system further comprises a retrieval unit for calculating a similarity between the color histogram of the query multimedia data extracted before and the color histogram of the multimedia data to be retrieved, and outputting multimedia data in accordance with the calculated similarity as a retrieval result," while claim 30 recites that "the content-based multimedia retrieval system further comprises a database for storing the color histogram of the extracted query multimedia data." Bergman does not disclose or suggest such a retrieval unit that makes such a similarity calculation and

outputs multimedia data in accordance with the calculated similarity as a retrieval result, or the claimed database. Further, there is no disclosure or suggestion that the search engine 1902 disclosed by Bergman makes such a similarity calculation and outputs multimedia data in accordance with the calculated similarity as a retrieval result, or that archives 1903, 1904, 1905 store a color histogram of the extracted query multimedia data.

Regarding section 3(A)9 at p. 15 of the Patent Office's Answer:

See above comments with respect to section 3(A)2.

Regarding section 3(A)10 at pp. 15-16 of the Patent Office's Answer:

In the Appeal Brief, Appellants argued that:

Claim 32 recites 'judging whether a color histogram of query multimedia data corresponding to a color space and quantization method of multimedia data to be retrieved is stored in advance' (emphasis added). Bergman does not disclose or suggest these features. That is, Bergman does not judge histograms based on color quantization nor does it perform such a judgment in advance of performing a similarity calculation between the color histograms.

The claimed judging is based on color space as well as color quantization method. The Patent Office argues that "there is no support in the specification for the argument of judging histogram based on quantization." However, the Patent Office is directed, for example, to Fig. 12, step S1200 and the corresponding disclosure at p. 36, lines 14-19 of the present application.

Further, the Patent Office argues that:

Bergman expressly teaches that 'each archives may utilize a different color histogram description. In order for the search engine to query the multiple archives given a query histogram Q (preferably generated by a user 1901), the search engine 1902 must transform that query histogram Q into the appropriate histogram color spaces of the particular archives 1903, 1904, 1905 (i.e., F1(Q),


F2(Q), and F3(Q), respectively). Content-based searching across multiple archives requires transformations of the required histogram Q to be compatible with the specific content descriptions in each archives.’ (column 13 line 56-column 14 line 2, emphasis added by Patent Office). Here judging whether a color histogram Q is compatible to the multimedia data to be retrieved stored in advance is inherently a step before the transformation of the non-compatible color histogram Q because one need to know before whether or not the archived multimedia data is compatible with the query multimedia data Q, thus, the judging has to be inherent operation. Finally, the emphasis quotation of Bergman illustrates that before one does the content-based searching (that is the similarity comparison of the content), one must transform (convert) the query histogram to be compatible with those in the archives.

Appellants disagree with the Patent Office’s assertions that “the judging has to be inherent operation.” Further, there is no disclosure or suggestion in Bergman of judging whether a color histogram of query multimedia data corresponding to a color space and quantization method of multimedia data to be retrieved is stored in advance, in particular since Bergman does not address color quantization methods. Additionally, Bergman does not disclose or suggest performing a similarity calculation between the color histograms. That is, there is no disclosure or suggestion that the search engine 1902 disclosed by Berman makes such a similarity calculation. Thus, Bergman clearly does not disclose or suggest performing such judgment in advance of performing a similarity calculation between the color histograms.

CONCLUSION

Based on the above comments and those set forth in the Appeal Brief, it is respectfully requested that the final rejection of claims 1-2, 4-7, 9-11, 13-18, and 28-33 under 35 U.S.C. §102(e) as being anticipated by Bergman and the final rejection of claim 12 under 35 U.S.C. §103(a) as being unpatentable over Bergman in view of Young be reversed.

Respectfully submitted,
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